REMARKS

Claims 1-2, 4-6, 9-20, 23-34, and 36-66 are presented for further examination. Claims 1, 4, 17, 31, 45, 48, 58, and 63 have been amended. Claim 3 has been canceled.

In the final Office Action mailed March 24, 2006, the Examiner rejected claims 1-6, 9-20, 23-24, and 36-66 under 35 U.S.C. § 101 because the claimed invention was directed to non-statutory subject matter. Claims 1-6, 9-11, 17-20, 23-25, 31-34, and 45-47 were rejected under 35 U.S.C. § 103(a) as obvious over previously-cited ATSC in view of Castelaz et al. Claims 12-16, 26-30, 36-44, and 48-66 were not rejected over the art of record and are presumed to be allowable if the rejection under 35 U.S.C. § 101 is overcome.

Applicants respectfully disagree with the bases for the rejections and request further examination of the claims.

Rejection Under 35 U.S.C. § 101

Independent claims 1, 17, 31, 45, 48, 58, and 63 have been amended to clearly recite subject matter that falls within the scope of 35 U.S.C. § 101. More particularly, method claims 1, 17, 45, 48, and 53 have been amended to recite a method "implemented" in an encoder (or in an audio data encoder per claim 1). In addition, each of these independent claims recites that the exponent set is coded according to the assigned exponent coding strategy. Independent claims 31, 58, and 63 are directed to a digital audio encoder, and these device claims have been amended to recite the encoder adapted to or comprising means for coding the exponent set in accordance with the selected or assigned coding strategy. Applicants respectfully submit that these claims clearly recite a transformation of the audio data via the encoder utilizing the method and device of the present invention. The results thereof produce a useful data set for coding or encoding audio data in a different form in the encoder. No new matter has been added by these amendments.

Rejection Under 35 U.S.C. § 103

In the continuing prosecution of this application, the Examiner maintains that the ATSC reference discloses all of the features of the claimed invention except the use of neuralprocessing, for which the Examiner relies upon the Castelaz et al. reference. There are,

however, important distinctions between the present invention as set forth in the current claims over these references, both individually and in combination thereof.

More particularly, the present invention utilizes a two-layer neural network processing in which the input is applied to both layers of the neural network processing. This is described under the heading "Neural Network System" on page 11, lines 14-17 of the published PCT application, where the specification indicates that neural computation or processing is performed by computing nodes and connections that "operate collectively and simultaneously on most or all data inputs." Thus, all of the nodes in both layers of the neural network receive the input, which in this case is the exponent sets (see page 11, lines 26-27, "The inputs to the neural network system are the exponent sets....").

In contrast, Castelaz et al. describe at column 5, lines 7-25 that the neural net signal processor (NSP) has three layers that include a "first, or input, layer" that "comprises neurons that are called the input neurons 22, and the neurons in the last layer are called output neurons 24." In addition, "each input neuron 22 is connected to each hidden neuron 26 in the adjacent inner layer."

During the training phase, Castelaz et al. describe a first step in which "a target signal 30 is transmitted to the input neurons 22." (See column 7, line 14.) At column 8, lines 16-24, Castelaz et al. state that: "Once training for all the target signals is complete, an unknown signal 32 is then presented to the input neurons 22." Nowhere do Castelaz et al. teach or suggest the input signal being sent to all of the layers or neurons in the NSP.

The ATSC reference does not suggest using a multiple-layer neural processor, and thus this reference taken alone or in combination with Castelaz et al. fail to teach or suggest a two-layer neural network processor in which exponent sets are input to both layers of the neural network processor.

Another important distinction is in the operation of the encoder, and in particular the neural network processor itself. In the present invention, the processor utilizes one of the layers for determining how many times the coding strategy for the first exponent set can be reused with other exponent sets. In other words, if the first exponent set closely matches additional exponent sets in the block of data that is received, then the coding strategy for the first

exponent set can be reused with the other matching exponent sets. This is preferably determined in the first layer of the neural network. The other layer of the neural network determines a coding strategy for the first exponent set by comparing the members of the exponent set.

There is absolutely no teaching or suggestion in the Castelaz et al. reference of configuring a neural network processor to have two layers, a first neural layer and a second neural layer, in which one of the layers determines how many times a coding strategy for a first exponent set can be reused, and the coding strategy to be used for the first exponent set. More particularly, in Castelaz et al., the NSP is structured to perform pattern recognition, *i.e.*, to determine the identification of a target signal based on previously stored patterns. Castelaz et al. do not teach or suggest examining a sequence of exponent sets to determine if a first exponent set can be reused with other exponent sets. And Castelaz et al. do not teach or suggest examining a first exponent set of a plurality of exponent sets to determine a coding strategy for members of the first exponent set.

Because the ATSC reference does not teach or suggest the use of neural network processing, this reference taken alone or in any combination with Castelaz et al. fails to teach or suggest the claimed invention.

Turning to the claims, each of the independent claims in this case, *i.e.*, claims 1, 17, 31, 45, 48, 58, and 63, recite receiving the sequence of exponent sets as input to a first neural layer and as input to a second neural layer of a neural network. As discussed above, nowhere do Castelaz et al. or the ATSC reference, taken alone or in any combination thereof, teach or suggest this aspect of the claimed invention.

Claim 1 further recites determining a first variation of exponent values within a first exponent set and a second variation of exponent values between the first exponent set and each subsequent exponent set in the sequence using neural network processing having a first neural layer computing weighted sums of its inputs to determine the first variation for determining how many times, if any, the coding strategy for the first exponent set is reused, and the second neural layer determining a coding strategy for a selected output of the first neural layer for selecting a coding strategy of exponents in the first exponent set. As discussed above, nowhere do the ATSC reference or Castelaz et al., taken alone or in any combination thereof,

teach or suggest first and second neural layers that perform the recited functions. In view of the foregoing, applicants respectfully submit that claim 1 is clearly allowable.

Dependent claims 2-6 and 9-11 are clearly allowable for the reasons discussed above with respect to claim 1 as well as for the features recited therein.

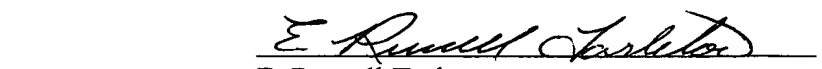
Independent method claims 17, 45, 48, and 53 each recite the input of the sequence of exponent sets to both the first and second neural layers. Applicants respectfully submit that these claims are clearly allowable for this feature alone. Independent device claims 31, 58, and 63 each recite the first and second neural layers receiving as input the sets of exponents and are allowable for this feature alone as discussed above. Claims depending from these independent claims are allowable for the features recited therein as well as for the reasons why their corresponding independent claims are allowable.

In view of the foregoing, applicants respectfully submit that all of the claims in this application are in condition for allowance. In the event the Examiner finds minor informalities that can be resolved by telephone conference, the Examiner is urged to contact applicants' undersigned representative by telephone at (206) 622-4900 in order to expeditiously resolve prosecution of this application. Consequently, early and favorable action allowing these claims and passing this case to issuance is respectfully solicited.

The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

Respectfully submitted,

SEED Intellectual Property Law Group PLLC



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